

BULLETIN OF  
THE NEW YORK ACADEMY  
OF MEDICINE



VOL. 42, NO. 10

OCTOBER 1966

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THE INFLUENCE OF EMOTIONS ON  
THE OUTCOME OF CARDIAC SURGERY:  
A PREDICTIVE STUDY\*

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THE concepts to be presented on this occasion are based upon data collected over a 9-year period (1957-1966) at Montefiore Hospital, New York, N. Y., by the Psychosomatic Service of the Division of Medicine. This service uses the team method of interdisciplinary teaching and provides a combined research and medical resident training program. In view of the fact that Montefiore enjoys an international reputation as a cardiac surgical center, it is understandable that 148 of the patients studied by us were admitted for heart surgery. This paper is limited to one aspect of the issues raised by these cases: the psychological parameter as a major factor in the outcome of cardiac surgery.

In discussing this subject before a group of psychoanalysts, there will be no need to belabor certain fundamentals with regard to neu-

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\*Presented at a meeting of the Association for Psychoanalytic Medicine, New York, N. Y., held at The New York Academy of Medicine, March 1, 1966.

rotic and nonneurotic established mechanisms of defense, or the difference between them and emergency mobilization of short-range defenses, nor is there need to establish the structure and economy whereby conscious and unconscious factors relate to each other, or the meaning of such primary defense patterns as flight versus fight, fear versus rage, the role of pain and pleasure principle, regression, denial, displacement, repetition-compulsion, the death wish, etc.

It may be refreshing to remind ourselves that certain terms are laden with deep emotional meaning, not only for those using folk language, but also for scientifically trained but not psychiatrically oriented professionals. Freud pointed out that language that persists through centuries reflects deep-seated group and individual investment in these terms, related to both primary drives and survival. It has also been noted that under conditions of warfare, it was possible to ascertain the actual religion and nationality of a prisoner who, after some period of illness, internment, or both, was permitted to choose his menu. Mulligan stew, chicken soup, or bacon and eggs are clues that even an amateur cannot overlook.

The past 9 years have added new meaning for us to old words, words such as lighthearted, downhearted, heartbroken, sweetheart, heartsick, disheartened, heartily, heavy-hearted, heartless, etc. The man who wrote the lyrics, "Be careful, it's my heart, it's not my watch you're holding, it's my heart,"\* reflected in his own way Freud's view of what the creative writer knows intuitively, but what we in our field can come by only through painstaking labor and meticulously kept data.

The precise uses and limits within which the psychoanalytic techniques may be used to the benefit of candidates for cardiac surgery must begin and end with an understanding of this special situation in which we find the patient. The habitual circumstances that provide the psychoanalyst with sufficient time and a relatively controlled setting in an office bear no resemblance to this somatic emergency in a race against time. Furthermore, what in the psychoanalytic situation we may fairly call primary anxieties such as fear of castration, identity crisis, and the more bizarre or even psychotic anxieties regarding body image, sex and ego—these all give way before a more fundamental and more ultimate type of anxiety that is at once somatic and psychological. This anxiety relates directly and in a finite way to survival. It is a fact that

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such a patient, from the moment he enters the hospital, must live constantly with the prospect of immediate death and with the assaultive knowledge that while he will lie powerless and unconscious, his heart will be held in a stranger's hand, at the mercy of a knife that will be put to it, and at the price that any error could result in something worse than amputation or impotence—total extinction.

A 31-year-old woman being evaluated for mitral commissurotomy discussed her husband's and her own attitude toward cardiac surgery as follows:

Dr. Kennedy: Was he very distressed about the operation?

Patient: No, he more or less feels that I need it and I should go through with it, and this is it. I more or less feel the same way, except that I think he is taking it too lightly, so I get very annoyed with him, and I keep telling him, it's my heart they are cutting up—you don't care.

Infantile and regressive fantasies, denial mechanisms, and even psychosis will all be brought into play by this feeling. As psychoanalysts, we know that man cannot contemplate fully the possibility of his own nonexistence. Yet it is the effort to do so, or an all-out mobilization in order *not* to do so that constitutes the core of the patient's conscious mental activity, saturating everything with free-floating anxiety, while the unconscious, as expressed in dream material, slips, and associations, functions turbulently at the fundamental level of the will to death versus the will to live. The patient will experience the entire spectrum of ambivalence, from self-hatred and self-love to rebirth fantasies and fear of death.

Intensification of psychological symptoms in over-all psychic activities including evocation of long-range and short-range defenses makes the prognosis for or against successful surgery a complex matter. And there is always the race with time. If, for example, addiction to the secondary gains of chronic illness were subject to years of reconstructive psychoanalytic therapy, that would be one thing; if a tenuous and already damaged masculine or feminine self-image of the patient were all that needed to be dealt with in the immediate future, that would be yet another. The issue of how the psychological parameter can prove to be a major factor in the outcome of cardiac surgery includes, in the first place, the total absence of the relatively leisurely tone or pace of the office patient-therapist relationship, despite

its occasional turbulences.

The somatic, temporal imperative gives the psychological parameter its specificity, its limitations, and its exciting potentiality. Only one more thing needs to be said as to this difference in therapeutic setting. There are occasions in which the total contact time permitted with the patient is a single interview. Based on this interview and subsequent discussions with the staff, a prediction must be made as to whether the patient is psychologically ready for surgery. We have learned that the psychological factors may influence the outcome in any step, from admission to the hospital through convalescence from surgery. It is often possible to predict which patients will have preoperative, intra-operative or postoperative complications, and which patients will be unable to utilize the benefits of this surgery. We find that the records justify our conclusions that diagnostic, predictive, and reconstructive aid can be provided by psychological skills, and that our techniques lend themselves to classification and communicable methodology.

Though it may be well known to all of you, allow us to describe briefly the eight steps a patient goes through on his journey to and through the operating room.

#### ADMISSION

The first step is that the patient is admitted. This is an admission in more ways than one. It is an admission of intolerable illness and an admission of the possibility of surgical rescue. For the congenital cardiac there is the further admission of his rage at his parents for a compromised birthright. For the victim of rheumatic heart disease who once knew, however briefly, a period of life when his heart was normal, there is the admission that an opportunity exists to make both his heart and life normal again. What both these patients will share from the time of admission to discharge is a dread of the evaluation, fear of suffering, panic at helplessness under anesthesia, an exaggerated sense of mutilation, and the possibility of sudden death. From the moment of admission, long-range defense mobilizations will intensify and, with each subsequent step of the process, the development of short-range emergency defenses gains in velocity. All this accelerates on admission.

A resident describing what happened to a woman with mitral stenosis within minutes of her admission to the hospital said:

"She was admitted for cardiac catheterization. The next thing we

heard was that she was in acute pulmonary edema. She was treated by the members of the house staff on the floor with morphine and i.v. Aramine, because her blood pressure suddenly dropped to zero, was given intravenous potassium, and responded fairly well. By the next morning, her lungs were clear."

#### DIAGNOSTIC EVALUATION

The second step is the diagnostic evaluation. This may include angiography, cardiac catheterization, and other mechanical procedures that build anxiety. Our interviews revealed that this is one of the darkest periods for the patient. Repeated examinations by many physicians and technicians, overheard conversations expressing conflicts of opinion between experts, and hollow reassurances, all combine to heighten the patient's anxiety. Paraverbal communications between doctors, nurses, and others who come into contact with the patient are crucial and often detrimental. It is during this period that such long-range defenses as defiance, submissiveness, and displacement are most clearly manifest. The patient's responses during this period may be viewed as the "dry-run" for surgery: indeed, these steps represent a real threat to the patient. Although some patients will be strengthened and motivated by having passed through this stage successfully, serious and even fatal complications have occurred at this time.

A young woman demonstrated anxiety concerning catheterization:

Patient: I'm nervous about tomorrow, because I—

Dr. Kennedy: What about?

Patient: I thought I was going to be catheterized.

Dr. Kennedy: Yes.

Patient: Today. But I thought it was for today, and it's just—

Dr. Kennedy: When did you come in?

Patient: Monday.

Dr. Kennedy: Monday, and you've been waiting and waiting. What do you expect is going to happen tomorrow?

Patient: They told me what to expect.

Dr. Kennedy: What?

Patient: About putting that thin tube in my arm and something near my leg—

Dr. Kennedy: Yes?

Patient: I don't know what it is, and a tube in my arm, and

when he said cut the arm and put the tube in, that's what got me nervous.

Another patient in this step panicked after catheterization. She was a 37-year-old woman with tight mitral stenosis. Following cardiac catheterization, surgery was recommended by her cardiologist. She had a heated argument with him, rejected the recommendation, and left the hospital. One month later she was admitted to the Psychiatric Division with a severe depressive reaction, and a phobic dread of being talked into heart surgery.

She underwent surgery a year later, and a prolonged convalescence in the hospital followed. Despite an excellent surgical result, at the time of discharge she stated her conviction, "I know my surgery wasn't successful. I feel lousy."

Still another patient in this step represents the ultimate complication. She was a 36-year-old married mother of two, admitted for evaluation of mild to moderate mitral stenosis. From data supplied by the physicians and family, it appeared that she had been in a state of dread since first apprised of the need for surgery 6 months earlier. She delayed evaluation until 2 weeks prior to admission, when she was persuaded to enter the hospital for catheterization providing she could defer decision on surgery. She felt certain that she would die during catheterization. Her family physician placed her on meprobamate, and she arrived at the hospital in a state of apparent calm, in contrast to her previous affect. At no time did the patient or the family voice her fears to the attending cardiologist.

Catheterization had to be terminated prematurely because of the patient's increasing panic and inability to cooperate. She was returned to her room in a state of disorientation, followed by shock and massive hematemesis. At this point we were called to see the patient, and found her in an acute psychotic withdrawal.

She died 24 hours later of massive defibrination. The family was then told by the undertaker that before admission to the hospital the patient had made complete arrangements for her own funeral.

#### AWAITING THE VERDICT

The third step in the process is awaiting the verdict. The verdict for or against surgery is rendered at a conference of the cardiovascular surgical group. This waiting period is in itself a threat and, at this

juncture, those who dread to surrender the secondary gain of a life of invalidism will begin to manifest a more intense ambivalence, hoping at one and the same time for a positive and negative verdict with respect to the value of and the necessity for surgery. A patient who genuinely seeks surgical rescue will manifest a reverse type of ambivalence, in which the normal attitude of relief expressed by him when he learns that surgery is not necessary is totally transformed. To tell such a patient that surgery is not necessary is to tell him that he cannot be helped and that he is doomed to a life of increasing invalidism and hopelessness.

A 27-year-old man desperately wanted to be told he could have surgery. He had such massive cardiac enlargement from rheumatic heart disease that he had developed recurrent laryngeal nerve paralysis with resultant hoarseness.

Dr. Kennedy: What do you think the chances are in surgery?

Patient: Well, from what I gather, if they can repair the valves, maybe get a lot of that shortness out, so that I could do a little more, and I wouldn't have too much difficulty. If they can do it, as I say, I would like to go back to school, there are a couple of courses I want to take.

Dr. Kennedy: What frightens you about the heart operation?

Patient: Well, the chance that maybe it won't be a success, maybe a disappointment, maybe it wouldn't actually solve my problems, I don't know. Let me put it this way, if the heart operation doesn't help me, I won't deny I'd get very depressed.

Another patient awaiting the verdict wanted just as desperately to be told that she *did not* need surgery.

Dr. Kennedy: What do you think they might do? What are you really scared of?

Patient: That I'm going to be operated—I don't want to be operated.

Dr. Kennedy: Now, what do you know about cardiac surgery?

Patient: I don't know anything about it.

Dr. Kennedy: Is that true?

Patient: But I had a cousin, she had surgery, and she passed on.

Dr. Kennedy: All right, how old was she?

Patient: Forty-seven.

Dr. Kennedy: And how long had she had heart disease?

Patient: All her life too, she had a murmur.

Dr. Kennedy: Too. And you knew when she was operated on?

Patient: Yes. The operation was a success. When she went into the recovery room, she passed away.

Dr. Kennedy: So—and you are sure, what?

Patient: Huh?

Dr. Kennedy: What are you sure about? What do you think will happen to people who have heart surgery?

Patient: Pass on. I'm afraid I won't come through it.

#### AWAITING SURGERY

The fourth step is awaiting surgery. During this period the primitive patterns of fear emerge. Castration fears are reenforced. Dread of total defenselessness under anesthesia increases. But the basic fear is fear of death. At this point those patients whose unconscious motivation is to avoid surgery will demonstrate physiologic and psychologic maladaptive behavior that will exclude them from surgery. Here too, as in the other steps, they may run fevers of obscure etiology, develop arrhythmias and acute pulmonary edema, or acute psychotic episodes. As the operation looms, short-range defenses may fail to emerge or may fail to hold against the increasing stress. Total panic can often erupt unexpectedly through the fragile defense of apparent serenity or bravado. Experience has shown that the panicked patient may not survive the mounting stress, and cancellation of surgery becomes mandatory.

A woman awaiting surgery for mitral stenosis talked about her feelings in regard to anesthesia:

Dr. Kennedy: But you say, you go into the street, you don't expect things to happen to you, but in surgery, what? You didn't finish the sentence. You left that thought trailing off.

Patient: In surgery, it's not exactly my doing, I'm not exactly walking in surgery, I'm lying there, the doctor is doing what he feels he has to do to help me. And I'm lying more or less sprawled out there, completely helpless, so whether I pull through or not depends upon the condition, I guess, that my body is in.

Another patient revealed the basic fear in this way.

Dr. Kennedy: Dr. G. tells us that he has recommended surgery



for you, and that you are not terribly happy about it.

Patient: Well, I'm not happy about it, because it's surgery, but I want to do it because it will help me, and that's all there is to it.

Dr. Kennedy: Well, what are you unhappy about?

Patient: I guess I'm afraid, that's what I'm unhappy about.

Dr. Kennedy: Well, I think anybody is.

Patient: That's about the only thing.

Dr. Kennedy: What are you afraid of?

Patient: Coming up—I want to get out of it, you know.

Dr. Kennedy: You mean, coming up, meaning what?

Patient: Nothing to go wrong downstairs, etc., in the operating room, that's the only thing. It's just that I'm afraid, I guess, of during an operation.

Dr. Kennedy: Are you afraid that something will go wrong, downstairs?

Patient: Sure am.

Two patients had crises shortly before surgery, one psychiatric and the other physiologic.

The first was a 50-year-old man who became increasingly depressed and withdrawn as the date for the mitral commissurotomy approached. One-half hour after signing the consent form for surgery, he became overtly psychotic, hallucinating actively, and was violently agitated. Surgery was cancelled, and he was discharged a week later, still overtly psychotic.

The second patient, a man of 62 with mitral stenosis, developed acute pulmonary edema.

Dr. Kennedy: I have a feeling you were pretty scared last time?

Patient: I don't remember being scared, I'll be very frank with you, doctor, all I remember is they took me in, shaved me, I felt wonderful on the table—

Dr. Kennedy: You knew that—

Patient: I knew I was going down the next morning—next afternoon.

Dr. Kennedy: So you were all right, they took you in to shave you, and—

Patient: I felt fine—he shaved me, I jested with him, joked with him, with the orderly who was doing it, and as I got off the table I said to him, "Gee, I feel very heavy, I can't breathe." By the time

I walked outside, I sat down in the chair, I just couldn't breathe at all, I was gasping for breath, and then I called for the nurse, Miss Durant. She walked me to my room and within 10 minutes, I could say I must have had every doctor in the hospital at my side. After that I fell asleep, they gave me an injection, I had a mask on me with oxygen, and I felt fine in the morning.

#### SURGERY

The fifth step is surgery. Here the destructive effects of conscious and unconscious anxiety do not terminate with the induction of anesthesia, and a considerable number of patients with poor psychological preparation do not survive this phase. The development of arrhythmias is often the fatal mechanism, and it is our belief that the excessively anxious patient is more prone to this complication. To diminish this anxiety we have found a useful technique that will apply to all types of patients. We call it "an appointment in time" and it is usually made with the patient directly before surgery. The simple statement, "I'll see you in the recovery room this afternoon," commits the patient to the future, and emphasizes our belief in the successful outcome of the operation. It is well to remember that the cardiac patient must endure terrible trauma and stress of exactly the type he is least qualified to stand by virtue of the illness itself. This is true despite the fact that gigantic strides have been made in cardiac surgical techniques. In fact, the sophistication of techniques and devices now makes eligible the most severely damaged cardiac patient.

A man of 34 with mitral stenosis and insufficiency who developed an arrhythmia during anesthesia induction lived to tell about it.

Dr. Kennedy: What happened in June?

Patient: It seems they had me under anesthesia, and the tubes that they put into the lungs—

Dr. Kennedy: Yes?

Patient: Like the body buckled up, and the heart just raced away a little.

Sometimes, however, the heart can race away more than just a little, as in the case of a 32-year-old father of five, of limited intellect and unchanging affect, who was engaged in massive denial of his fears, not of his disease. He rationalized his denial and fear of surgery by expressing happiness that he could be operated on "before it is too late."

His anxiety was manifested by increasing insomnia and by refusing sedation because, he said, "I want to stay awake till after surgery." Since immediate surgery was mandatory, it was deemed advisable to handle his anxiety by adequate sedation and frequent reassurance. The night before operation he was described by the anesthetist as being calm and cooperative. Shortly after induction of anesthesia he developed an arrhythmia and died.

### THE RECOVERY ROOM

The sixth step is the patient's return to consciousness in the recovery room. Here again, regardless of type, prognosis, psychological support, etc., there is a general patient response that we have come to call "the elation at survival." We have rarely seen a patient who has survived the ordeal of surgery and promises to make successful progress toward health who did not open his eyes without a smile or some other such sign that he was glad to have "made it." The absence of this sign is a harbinger of difficulty. The taxing nature of existence in the recovery room imposes a further psychological stress on the patient. To him recovery is signaled by leaving the recovery room and returning to his own room. It is in this period that the emergency defenses often break down. Preoperative fears are now real burdens. Pain, violation of the body by mechanical devices, respirators, tracheotomies, audible cardiac monitors, and infusion and drainage from all available orifices create a distorted and alien perception of self. Defenses to deal with this new situation may not be forgeable or available. It is in this phase that the patient pays a high premium for being psychologically unprepared, and the literature has many references to the high incidence of psychiatric complications following cardiac surgery. They range from prolonged sleeplessness and restlessness to overt panic and actual psychosis. The precarious balance between life and death may well be upset at this time by the development of such complications.

An example of the temporary breakdown of defenses in the recovery room occurred in a patient whom we saw there for the first time. This 47-year-old woman had an acute episode of dyscontrol in the recovery room following mitral commissurotomy.

She had handled the anxiety of the year before surgery by denial mechanisms, and by keeping so busy that she was "unable to think," working until the day before admission. Her defenses held until the

operation was over, and then broke down temporarily. With sedation and reassurance, she again began to cope with her situation, and was anxious "to get well and get back to work."

Another patient, with pulmonic stenosis, had emergency cardiac surgery following accidental puncture of her right ventricle during catheterization. Following discharge, she spent 6 months at a state hospital for a psychotic depression. We were asked to evaluate her prior to readmission for correction of the original cardiac lesion.

Dr. Bakst: When did you begin to feel depressed?

Patient: Soon after I went home.

Dr. Bakst: How long?

Patient: Less than a week.

Dr. Bakst: Did you get in touch with the doctors down here, about it?

Patient: I had broached the subject, I think, in the recovery room, and I was told I was all right, and not to worry about it.

Dr. Bakst: What did you tell them in the recovery room?

Patient: I told them I wanted a psychiatrist.

Dr. Bakst: Why?

Patient: I felt as though I needed one, I felt sure of it. I felt upset.

Dr. Bakst: About what?

Patient: I was worried.

Dr. Bakst: And how long did the worry last?

Patient: Lasted all the time I was in the hospital.

Dr. Bakst: Did you get a chance to talk to anybody about this?

Patient: I just told them I wanted to see a psychiatrist.

Dr. Bakst: And what did they say?

Patient: They said, "No, relax, go back to sleep. Take it easy."

Dr. Bakst: Is there anything you would like to ask me?

Patient: No—I'm worried about the chances of having a relapse after surgery.

Dr. Bakst: A relapse of what?

Patient: Of becoming depressed again at the time of surgery, I mean during that recovery room phase. That's the only thing that worries me.

Dr. Bakst: We are going to be around when you are operated

on and we are going to be in there, in the recovery room to help you, so that if you feel depressed, you won't have to go it alone.

Patient: I will feel better if there is someone there.

Dr. Bakst: Yes, somebody who knows not only about the heart and operations, but something about your feelings as well. Well, that's right, and that is how we feel.

We saw this patient daily preoperatively, in the recovery room, and postoperatively. Except for a brief flurry of depression, her recovery was uneventful.

A 40-year-old night watchman who had not been seen by us preoperatively was described to us as an "ideal patient." He was pleasant, submissive, and appeared to be free of anxiety. In the latter part of a long stay in the recovery room, he was found out of bed, hiding in the next unit of the recovery suite, confused and disoriented, and with visual hallucinations and ideas of reference. His delusion centered around a group of seven men standing around talking about him, and concealing their conversation by running a floor waxer. He decided to hide before they could attack him because he did not have a gun with which to shoot his way out. Although the acute psychotic episode was over by the time of discharge, some ideas of reference persisted.

These three patients had serious complications in the recovery room but survived. The next two patients were less fortunate.

The first of these was a most infantile 42-year-old spinster with moderate mitral stenosis whose sister had recently died during cardiac surgery. We rejected this woman twice on psychological grounds because during each evaluation she exhibited behavior reflecting her disinclination toward surgery, i.e., rubbing her thermometer to simulate fever, and an attack of hysterical total-body anesthesia. At her family's insistence she was again admitted for mitral commissurotomy, and we passed her reluctantly, stating that if she presented no obstructing maneuver this time, she might survive. She was operated on, developed a fatal arrhythmia, and died on the night of surgery.

The second patient was a 42-year-old woman admitted for mitral commissurotomy. She was terrified of any surgery, but particularly frozen by the concept of cardiac surgery. She said, "Two things one must not tamper with are the heart and the soul," and, "Were the surgery only for myself, I wouldn't consider it." The patient had agreed to surgery in response to pressure from her husband, who had

urged her to "leave the monster in the hospital." At that time, we believed that without adequate psychological preparation she might not survive the operation. Surgery was canceled and she was discharged. However, the recommendation for psychotherapy was rejected by her physician. She was readmitted 6 weeks later and operated upon. She died the night of surgery, and autopsy failed to reveal the immediate cause of death.

#### CONVALESCENCE

The seventh step is the long or short road from convalescence to normality. Part of it is spent in the hospital and part of it at home. We say long or short because the sheer fact of measurable time must be reconciled to the patient's subjective concept of it. That in turn is determined not only by the amount of postoperative somatic complications but also by the life situation and the high or low cost of mobilization of defenses that was involved. In this phase is demonstrated the patient's capacity to utilize the benefits of surgery. The factors that determine this will be discussed later. Also, unexpected somatic complications—"these are the things no one told me about"—can affect the rate and path of return to active life. On the whole, the seventh step is most fundamentally bound to the nonsomatic factors just described and the patient's attitude toward the entire prospect of health. Health either cannot come too soon or will always come too soon, depending on how prepared the patient is after surgical rescue for the burdens of a new-found freedom.

Statements made by patients for whom health cannot come too quickly will be cited below. Meanwhile we cite a patient revealing that, for her, health is arriving too soon.

Dr. Kennedy: Now are you looking forward to getting a job?

Patient: No, I'm looking forward to—last night I did tell the family—that I was—I said, "Now, I have some bad news for you." And the three of them looked at me—"It's going to take a 6-month convalescent period, you know."

Psychiatric complications can occur in the convalescent period in the hospital. A patient who was excessively cheerful and garrulous before emergency cardiac surgery showed no elation at survival in the recovery room. After her return to the floor, she referred to her room as a "stateroom aboard a cruise ship," and was sure she had not

yet been operated on. She kept asking for her *preoperative* medication because, she said, "I may never be back again." She gave every evidence of having a postoperative psychotic episode from which she emerged slowly.

#### RETURN TO NORMAL LIFE

The last step is the return to normal life. This then is a new admission. The patient must admit and face the fact that he or she now can and must reenter the family and assume the proper marital, sibling, parental, socioeconomic, and sexual roles, no longer crippled by or carrying the crutch of heart disease. No patient, from the most to least motivated, will embark upon this phase without some response to the fact that he has given up something, however melancholy or costly a gift it might have been. The patient has taken on a new burden, however welcome it may be. He must be helped to face the fact that, like everything else, even freedom has a price.

We were asked to see a patient noted to be depressed during the convalescent period. We had not seen him prior to surgery. The depth of his depression was responsible for his barely audible answers.

Dr. Kennedy: Now supposing they tell you, the cardiologists, that everything is fine, and that after a certain period, you will be able to go back to your work—what?

Patient: Gotta show me.

Dr. Kennedy: Gotta show you, how do we gotta show you?

Patient: Gotta show me.

Dr. Kennedy: Test of work or what? What would showing you consist of?

Patient: I have to have proof.

Dr. Kennedy: Well, what would be proof for you?

Patient: I don't know.

Dr. Kennedy: Well, you have to know what the proof is, otherwise we can't prove it to you, can we?

Patient: If you tell me that you're gonna tell me that I'm gonna be so and so, and then—cover it.

Dr. Kennedy: And then what?

Patient: Cover it. How you gonna prove it?

Dr. Kennedy: That's what I'm saying, we are in some sort of stalemate, aren't we?

Patient: Yeah.

Despite a good result from surgery, he lived the life of a recluse and, 2 years later, died in his sleep. His epitaph was supplied by his wife, who said, "That man really died on the operating table."

These eight steps are relatively fixed circumstances within which psychological methods must function in the aid of successful cardiac surgery. This is the context in which the psychological parameter becomes a major determinant in the outcome of cardiac surgery. By defining and classifying different types of defenses, the accuracy of differential diagnosis and prognosis can be improved.

#### A FACTOR COMMON TO ALL

In seeking to classify the patient, the psychiatrist is confronted by somatic crises, shortage of time, organic disease, the waiting patient whose life patterns may be drastically changed, the issue of surgical rescue from dwindling strength, chronic disability and damaged body integrity, and the new anxiety of returning to old circumstances in a heretofore unknown way. And there is one more factor common to all these patients, one they all bring with them upon admission. It is a threefold payload of anxiety caused by the heart disease itself. First, there are symptoms of a terrifying nature, that is, chest pain, palpitation, hemoptysis, etc., imposing further somatic burdens on an already compromised circulatory system. Second, there is the threat inherent in the diagnosis of heart disease, for while all illness creates anxiety by its actual or threatened damage to body integrity, in the case of the heart, for reasons already stated, this is more severe, and real dangers are inflamed beyond their reality. Third, there is the fact that the patient must anticipate or has already experienced real limitations in physical capacity and lives with the knowledge that this will be progressive. Even healthy ego defenses are taxed to their utmost limits by the need to adjust to the progressive constriction imposed by the disease itself and the attitude of significant environmental figures toward it. Denial mechanisms, regression, and fight or flight are the essential patterns of adaptation. With this in mind, the psychological interview seeks to elicit the ways in which the patient has assessed his or her situation, has failed or succeeded in setting up a realistic appropriate program for his illness, does or does not understand the implica-



tions of the evaluation and of the surgery itself, and will or will not anticipate a life free from the crippling influences of the disease.

The differences in a patient's mobilizations and motivations as well as the type of psychological aid the patient can be given lead to a usable structure of classification, consisting of six rudimentary but fundamental psychological categories.

#### GROUP 1

The first group is the one with the best prognosis for weathering the stresses of surgery. Paradoxically enough, they may enter the hospital setting with a history of denial of illness. We are not talking now of psychotic denial, for a patient will obviously not come to surgery for a nonexistent illness. The first group tends on the whole to recognize the risks of surgery and the possibility of death, but the denial mechanism blocks out the fear of anesthesia, periods of helplessness and unconsciousness, and any idea of unpleasantness or difficulty in the operating and recovery rooms. When this type of patient is given help in accepting the amount of helplessness involved, and is rendered accessible to the fact of temporary dependency in order to achieve a realistic independence, he will come through the eight steps in good psychological condition. To the extent that the preparation has been insufficient, he may suffer substantial turbulence in the immediate postoperative period. There is always, of course, that rare exception, the ideal patient who has recognized and made adjustments to the preoperative fact of limited function, understands the calculated risks of cardiac surgery, and has only the burden of stoicism that must be managed. From there on the issue is in fundamental terms a somatic one. What the first group has in common is a tremendous motivation to become healthy, to fulfill themselves as men and women, to face the burdens and reality of cure, *and to live*. The main danger facing Group 1 is the magical expectations that result from the denial mechanism. The fears of these patients must be uncovered, and their dependency needs given citizenship. Their readiness to accept support and have faith in it are crucial.

The two patients representing Group 1 were both severely disabled cardiacs. The first was a man of 28, who had the most severe pulmonic stenosis we had ever seen in an adult. The color of his lips and nail beds was not merely cyanotic, it was black.

Dr. Kennedy: You're really anxious to have this surgery? What's the news on it? Do you know, have they told you, yes or no?

Patient: They told me, yes. They gave me a date of the 28th of next month.

Dr. Kennedy: Oh. How do you feel about it?

Patient: The 24th of next month, pardon me. I feel good about it, only I feel it's too far off.

Dr. Kennedy: You mean, you want it sooner? Why do you think it's so far off?

Patient: It's six weeks, in six weeks I could improve and go on my way home, if I have it done now. I mean it's short, but yet to me it's a long way off.

Dr. Kennedy: Are you worried about the operation itself?

Patient: Not particularly.

Dr. Kennedy: I didn't say how much, I asked were you worried about it at all?

Patient: No.

Dr. Kennedy: You mean you don't think much of it, or you are really not troubled by it?

Patient: I'm not troubled by it.

Dr. Kennedy: That makes you very different from everybody else.

Patient: I don't know. I never was sick. I never actually stopped to think about it, you know, and they told me an operation would help me. I never even thought anything, so it don't trouble me. All I know is, I can't get around now, and I do want it.

Dr. Kennedy: You say you never were sick in all your life?

Patient: Well, I mean I'm sick as far as that goes, but it never bothered me, let's put it that way. In my head, I was never sick.

Dr. Kennedy: You could do everything the other boys did?

Patient: That's right.

Dr. Kennedy: Didn't it cost you more to do it? Didn't you get more tired?

Patient: Oh, I would say on an average I would only be about 10 minutes behind on anything.

The second patient was a 26-year-old woman who had been in

chronic congestive heart failure since the age of 12.

Dr. Kennedy: Well, what do you think you are, do you think you are physically healthy?

Patient: Physically? I hope so.

Dr. Kennedy: But are you really?

Patient: I know that I have a—you know—a defective heart.

Dr. Kennedy: You know it?

Patient: Yea, but I feel fine, it doesn't affect my feelings. I don't think I'm afraid of having the operation.

Dr. Kennedy: What would you be afraid of?

Patient: I'm anxious to have it, I don't think I'm afraid of it.

Dr. Kennedy: Have you ever been operated on in your life?

Patient: No.

Dr. Kennedy: Have you ever had anesthesia?

Patient: No, I don't think it really bothers me at all one way or another about having the operation. I haven't thought of it that deep, maybe, you know, hoping that, you know—

Dr. Kennedy: What do you hope from the operation?

Patient: I hope that whatever they intend to do, it will be corrected.

Dr. Kennedy: Have you really never thought what it means to have a defective valve?

Patient: No. Because I have done everything all my friends have done, ice-skating and dancing, it never bothered me.

Dr. Kennedy: When did it begin to bother you?

Patient: I don't think it ever did. I never remember being sick from it.

Dr. Kennedy: You never remember feeling differently than you do now?

Patient: No. And I feel the same now. And I didn't feel sick at the time when my ankles were swollen.

Both these patients were operated on and did extremely well.

## GROUP 2

Patients in the second category often give an initial impression of being far more ready for cardiac surgery than those of Group 1. They seem to have accepted realistically the limitations imposed by the disease. They accept, or seem to accept the aid provided by medical

staff personnel. They cooperate with procedures up to the point of catheterization and sometimes beyond it, but—they do not want rescue. They are addicted to a disease-dependent way of life and, on the whole, this category of patients does not do well in surgery. In those cases where they agree to surgery, they do not take advantage of the freedom that surgery has provided, but rather they return to their previous patterns of invalid dependency. In short, the original conflict between the desire for and the dread of surgery is intensified and, were it not for the fact that this second category most often refuses surgery, some of the statistical results would be more dramatic and tragic. We are sure that to a group of psychoanalysts it is not necessary to describe in any detail how in this category the secondary gains have assumed a role of primary neurotic proportions. This is true whether the adaptive equipment of a patient was lamentably deficient before disease, or whether it simply could not endure the crisis of the onset and the course of the disease. For the former, the disease is a macabre blessing as, for example, in the case of a male who is unwilling or unable to accept his role and receives complete social sanction by virtue of his disease. With the disease, it becomes unrealistic for him to compete, assume leadership in a family unit, or stand up and be counted. Rather it is now “mature” of him to come to terms with the crippling limitations of his functions. To such a patient freedom equals disaster, and a slow chronic death is the easiest journey between birth and grave. In the latter patient, whose ego is crushed by the disease itself, a precariously balanced psychic economy was struck a blow, upsetting the balance, and the id takes command in its most infantile form. The regression is swift though the disease is chronic. Patterns of adjustment that worked when he was a child are reinstated; conscience is redefined in terms of what the world must allow in view of the tragic nature of the illness. These patients usually seek hospital admission for cardiac surgery because of pressure from members of the family who can no longer tolerate the burden of this patient, either because of their own psychological needs or because economics and other realities have made it too costly. All that these patients fear is freedom.

Usually the amount of time allowed for psychological exploration and reassurance is too short even for the briefest type of therapeutic bolstering. In this second group of disease-dependent patients, however

good a risk such a patient may appear to the psychologically uninformed, surgery equals death. The patients in category 1 of our 6 groups are united by a common desire to get well. Those in category 2 are united by a desire not to do so.

The first patient illustrating Group 2 is a 58-year-old woman with mitral stenosis.

Dr. Kennedy: Did Dr. C. tell you why we wanted to talk with you today?

Patient: Yes, more or less. My case history is not much to tell. Elizabeth Taylor I'm not, you know.

Dr. Kennedy: So why do you think we wanted to talk to you?

Patient: Well, I really . . . just to get me on the right track about this situation.

Dr. Kennedy: Can't even say the word?

Patient: Can I say the word?

Dr. Kennedy: What is the situation?

Patient: I hate to mention the situation. I'm sort of a little skeptical.

Dr. Kennedy: Dr. C. said that your husband retired. How old is he?

Patient: My husband is 67.

Dr. Kennedy: And was it a good thing that he retired? Did he want to?

Patient: It wasn't a good thing, no.

Dr. Kennedy: Did he want to?

Patient: Did he want to? No, he *had* to.

Dr. Kennedy: Because of age, or because of you?

Patient: Because of *me*. Because there was nobody to take care of me.

Dr. Kennedy: Well, how does he feel about the operation?

Patient: Well—he—I told him that Dr. C. talked to me yesterday, and they are continuing the . . . we resigned ourselves that I wasn't going to have it.

Dr. Kennedy: Resigned—what does that mean?

Patient: I had made up my mind, I wasn't going to have it.

The second patient is a 53-year-old woman with mitral stenosis.

Dr. Kennedy: The doctors told me that they just decided they weren't going to operate.

Patient: Yes, I'm glad.

Dr. Kennedy: You're glad? Were you very upset about the thought of surgery?

Patient: At the time I found out I may require it, I was.

Dr. Kennedy: Were you surprised too?

Patient: Yes. I never even heard of anything like it, and then when I thought that I may have to go through with it, well—

Dr. Kennedy: Now, were you a little disappointed, even though you were relieved? Were you disappointed that you were not going to be operated on?

Patient (laughing): Oh no. I'm glad.

Dr. Kennedy: What are you going to do about the clots that the heart makes? Are they cured?

Patient: Let them go, that's all. If they are there, they are there. If they are not there, and it's just my imagination—then—I said to the doctor, "If I have a—if the clots are there, if I don't go through with it, and I don't go through with the examin—with the operation," I says, "what will happen?" He says, "Nothing, you just go as it is."

Dr. Kennedy: Who does your housework for you now, your daughter?

Patient: Until recently, I did the sweeping, the dusting, and the cooking—shopping I go, but I send up everything, so I don't carry bundles, and if there is anything, usually my sister used to carry up heavy things for me.

Dr. Kennedy: Oh, and now your daughter does most of it?

Patient: And now it's the same thing, I go down and I pick everything I want and they deliver it. And, for the work, my daughter took in—somebody. There are only two of us and she takes somebody in once in 2 weeks.

Dr. Kennedy: And you just go visiting during the days, or you sit?

Patient: Yeah, that's right, I knit—I made my daughter a knitted dress and a suit and I was offered a job knitting—

Dr. Kennedy: Well?

Patient: Well, what do you think I am? A dress in one week? Hand-knitted to size?

Dr. Kennedy: What would they pay you?

Patient: They offered me \$65.00.

Dr. Kennedy: Think that's bad for a week's work?

Patient: I could never finish that in a week because I only do it when I get nervous or upset, so to quiet me I knit, but not because to make the money, because I get very tired. I get pains right in the back here.

Dr. Kennedy: But do you get pain in your chest from the knitting?

Patient: No.

Neither of these patients ever accepted surgery.

### GROUP 3

The patients in the third group are characterized by a degree of panic that may effectively paralyze their long-term and short-term defenses, whether they are neurotic or healthy. Group 3 presents a common front of ever-growing fear and dread as they move from one stage to another on the road to surgery. Quite simply, Group 3 is suffering from a conflict between a strong desire to be well and a no less strong dread of the terrifying prospect of surgery and all its implications of helplessness and the menace of immediate death. So they share with Group 1 a desire to face the surgery in order to become well. Where the first group tends to deny the reality of the eight steps between admission and health, this group tends to exaggerate the dangers and terrors of these steps. They can be put into acute panic on the way into catheterization. They can also die of arrhythmias and shocklike states on the way into the operating room or during the actual cardiac surgery. But with proper psychological management, this group proves to be accessible to support. Whereas in the case of Group 1 it is necessary to pierce the membrane of denial and mobilize defenses of a realistic nature, with the third category it is necessary to give the patient more faith in himself. This bolstering of the ego is accomplished by reaching the basic anxiety in the patient. Very often, deferring surgery will give this type of patient the respite and sense of free choice that he needs to be psychologically mobilized for the experience of surgery and postoperative recovery which he

alone must face.

This patient is a 31-year-old man with mitral stenosis.

Dr. Kennedy: How do you feel about the operation?

Patient: Fine.

Dr. Kennedy: Really do? You mean you are not a bit scared?

Patient: Scared—I'm plenty scared.

Dr. Kennedy: What are you scared of? Let's talk about it, because I think it is easier for you if we do.

Patient: I'm scared. Look, it's the knife. I'm scared, just like anybody else.

Dr. Kennedy: That's quite true. If you weren't scared, it would be very odd.

Patient: The more you think about it, the worse it gets.

Dr. Kennedy: Well, have you any questions you would like to ask me?

Patient: In reference to what?

Dr. Kennedy: Well, let's say, for instance, in reference to the operation?

Patient: No, I think whatever is going to be, is going to be. What's got to be done will be done, and that's all there is to it. I'm ready for anything that happens.

Dr. Kennedy: Do you have a preference about what happens?

Patient: Yeah, I would like to go in now and come out in 15 or 20 minutes, and forget the whole thing. But I know it's not going to be that way.

Dr. Kennedy: That's true, it isn't.

Patient: But I feel that I'll come through it.

Dr. Kennedy: Listen, it's hard. You're going to have a rotten day Thursday after the operation.

Patient: Even if I have a rotten week, what's the difference?

Dr. Kennedy: We will be in to see you. Your resident, Dr. F., will be there most of the day, won't you? You are going into surgery with him, are you not, Dr. F.?

Dr. F.: I'll be there, we'll be supporting him.

Dr. Kennedy: The point is that your friends from the floor will follow you to protect you. I shall see you Thursday afternoon.

Patient: Are you going to be there also?

Dr. Kennedy: Oh, I'll see you in the recovery room. We have



an appointment in the recovery room.

Patient: I didn't know that.

Dr. Kennedy: Yes, well now you know. Your hospital family will follow you to the operation and in the recovery room, so you have people who will be your guardians, okay?

Patient: S'good enough for me.

Dr. Kennedy: Okay.

The second patient representing Group 3 is a 39-year-old man with coarctation of the aorta and a left subclavian aneurysm.

Dr. Kennedy: What did he do? He came and told you what?

Patient: Yeah, he told me of an operation.

Dr. Kennedy: What did he say?

Patient: He said there'd be a slight mechanical thing that could be fixed.

Dr. Kennedy: And did he ask you to make up your mind about it, or what?

Patient: Well, he said it's prepared for Thursday, I don't know.

Dr. Kennedy: Well, how do you feel about it? Do you want this operation?

Patient: I don't know. If it's gonna help me, I would rather get it over with—and that's it.

Dr. Kennedy: But what's the "if" about?

Patient: I'm tense, that's all.

Dr. Kennedy: Of course. What are some of the things you might be afraid of?

Patient: Gee, I don't know. I can't tell you. I can't tell you. I mean, I don't know.

Dr. Kennedy: Are you afraid of anesthesia?

Patient: No. It's the idea of going down there.

Dr. Kennedy: To the operating room?

Patient: That's right. If they'd put me out, I wouldn't care.

Dr. Kennedy: Well, tell me, did you talk it over with your wife, about this operation?

Patient: Yes. She said, "You should go through with it." What could she say?

Dr. Kennedy: Well, she might say, "Don't."

Patient: She might say don't. She said, "You're in God's hands."

That's all. What could she say?

Dr. Kennedy: And you feel that that's so, you're in God's hands?

Patient: Yes, ma'am.

Dr. Kennedy: And you really feel then that there's nothing for you to decide?

Patient: No.

Dr. Kennedy: Did it occur to you, you might want to say no?

Patient (laughs): You got me in a spot now, what can I say?

Dr. Kennedy: And where do you think the trouble is?

Patient: In my chest.

Dr. Kennedy: In your lungs?

Patient: I don't know. I don't know.

Dr. Kennedy: You don't know whether it's in your lungs, or in your heart, or your blood vessels?

Patient: I don't know.

Dr. Kennedy: Do you want to know?

Patient: No, I'd rather not. 'Cause I'd put it on my mind, and it's worse.

Dr. Kennedy: All right—tell me, do you ever dream?

Patient: Surely.

Dr. Kennedy: Well, can you remember a recent one?

Patient: A recent one? Well, I dreamt of father. He's passed on.

Dr. Kennedy: I see. When did you dream that?

Patient: The other night.

Dr. Kennedy: I know your father died while you were in service.

Patient: I didn't see him.

Dr. Kennedy: And what did he die from?

Patient: He died of a heart attack. He had asthma which weakened his heart, 15, 16 years. When I don't feel well, I see my father.

Dr. Kennedy: And you dreamed of him the other night? What was the dream about?

Patient: I dreamed that we had a poultry market and that's what I dreamt of—killing chickens.

Dr. Kennedy: Did you have a poultry market?

Patient: Yes.

Dr. Kennedy: And how did you feel about that dream?

Patient: I don't know.

Dr. Kennedy: Did it make you feel blue?

Patient: No, but he didn't give me any reason. You know, no specific reason.

Dr. Kennedy: Just that you were back killing chickens?

Patient: Chickens—pulling the neck, killing the chicken . . . just a dream, that's all.

Dr. Kennedy: Now, you said something before that I wanted to ask you about. You said you're a great kidder. Did you run into anybody here who didn't know how to take the kidding?

Patient: No, they've all been very nice here. I've got to say, they've been very, very nice. They all told me, "Calm down." The nurse says, "Relax, your pulse has to go down a bit. Take it easy. Don't run." I get a phone call, I run. "Don't run, take it easy." They've been after me.

Both these patients did well in surgery, and in both cases they greeted the appointment in time in the recovery room with elation at survival.

#### GROUP 4

While no less paralyzed by ambivalence, Group 4 is, in point of fact, similar to Group 2, just as Group 3 is similar in broad terms to Group 1. Group 4 is paralyzed by the conflict between the recognition of the value of freedom from the crippling disease and the terror of giving up the secondary gain of dependency. The paralysis is manifested by uncooperativeness in the stages preceding surgery and, if they get past surgery, by excessive responses; they demand too much medication, they won't cough, they pull out tubes, are sleepless, and if they do not die in the recovery room from exhaustion or psychosis, they will not use the rescue once they are discharged. It is vital to catch the early signs in the first interview of just what patient category we are dealing with. Group 4 will go to surgery under family pressure or because so much of their own motivation genuinely wants to be well. But it is extremely important to find out with what degree of preparation they are going to surgery and whether the motivation is theirs or someone else's. Patients in groups 3 and 4 are the most common types of patients admitted, which is only another way of saying that the fact of ambivalence confronting those with an unhealthy motivation is the almost

inevitable concomitant of facing the prospect of something as fundamentally transforming as cardiac surgery.

The degree of this Puerto Rican woman's distress was reflected in her incessant weeping throughout the interview.

Dr. Kennedy (to the crying patient): I don't have any Kleenex. Does anybody? All right, maybe she has some. Well, why are you crying, Mrs. R.?

Patient: Because I never leave my house.

Dr. Kennedy: You never left your house?

Patient: I don't want to stay in the hospital.

Dr. Kennedy: Even if you can be operated on and feel better and go home well?

Patient: Well, that's what —if I gonna be well or not, I don't even know. Maybe I dying.

Dr. Kennedy: That's what you're afraid of? Maybe you won't come through the operation? Why don't we talk about it? You know, everybody worries about that.

Patient: I have to think about my children—because when my mother died, and my father—I suffer so much.

We recommended that operation be postponed and that she be placed in treatment with a Spanish-speaking therapist. She was readmitted 5 months later in a more suitable psychologic state for surgery, which she sustained without incident.

The next patient demonstrated family pressure as the only motivation for surgery.

Dr. Kennedy: Now, is your husband pushing you for the operation, or do you—

Patient: Yes, he says to me, "When you come out now, make it your business—. You are not going to keep going in and out. I mean, if they could help you, let them do it. Let them help you."

Dr. Kennedy: And your feeling is what?

Patient: So now I'm feeling, so many people are telling me, "You're foolish. Why do you live like this? Why do you go on? Why don't you have it done?" So I put it in my mind and I says, "So—I'll just close my eyes and have it done."

This patient developed pulmonary edema when catheterization was attempted. She refused further investigation and never came to surgery.

## GROUP 5

Group 5 we call "the sanctioned suicide." These patients find life intolerable. Their former way of life is unacceptable. The prospect of facing a new life with all of its attendant hazards is too much. Their will to live has been worn away. For religious or primitive biologic or psychic reasons, or the plain absence of any will to any real action, even destructive action, they cannot take their own lives. This category is the most deceptive of all. Their wish to die is greater than their fear of surgery. In addition, they do not expect to be here to face any pain after the operation. If they are approved for operation, the rest of it, as far as they are concerned, will be taken care of for them. The surgeon will be the executioner. Here the psychiatrist must not be misled by a seeming readiness, even an eagerness for surgery. In the ward such a patient will be cooperative and obedient to instructions. Small and large clues will be dropped, however, attesting to the unconscious will to die. Group 5 patients are usually detectable in the first interview. Often, if given sufficient time, this unconscious will to die can be exposed to the patient and the opportunity provided to abreact to what such a patient has every right in the world to describe as an unfortunate fate. What was intended as a sanctioned suicide can then become a new lease on life. But without sufficient time to uncover for them their unconscious motives and true choices, they present a poor prognosis. Properly prepared and given sufficient time, they may enter surgery with turbulence but with a good prognosis.

A 34-year-old woman had a mitral commissurotomy about a year prior to the following interview. Shortly after her operation, her husband left her after 10 years of marriage. Because of renewed evidence of mitral stenosis, she was readmitted for a second commissurotomy. A few days before operation, it was noted by the surgeon that she appeared somewhat depressed, and he asked us to see her in consultation.

Dr. Kennedy: Why do you think that Dr. H. wanted you to see a psychiatrist?

Patient: I don't know. He didn't say anything to me.

Dr. Kennedy: Did you think he thought you were crazy?

Patient: No.

Dr. Kennedy: Well, could you guess, then, why he might?

Patient: I'm a wreck, that's all.

Dr. Kennedy: What's going on that makes you feel you're a wreck?

Patient: Nerves—knowing what's ahead of me—go through the same thing over again. Where do I go after it's done?

Dr. Kennedy: Meaning?

Patient: Meaning, how much can I work? What can I do?

Dr. Kennedy: Nobody has told you this? Did you ask?

Patient: No.

Dr. Kennedy: What do you suppose kept you from asking?

Patient: I don't think I'd pull out of it this time.

Dr. Kennedy: You don't? Why do you say that? It's very important for us to know.

Patient: I'm probably not giving myself a fighting chance.

Dr. Kennedy: I think that's true. Don't you want to pull out?

Patient: I don't see anything ahead of me.

Dr. Kennedy: Then why are you going to have the operation?

Patient: Why? Well, I look at it this way. It's better to go under anesthetic than to go through too many sleeping pills one night.

Dr. Kennedy: What do you think, that you're no good, now that you have heart trouble?

Patient: Who'd want me? If a man lives with you 10 years and you're not sick and he leaves you, who wants you?

This young woman, despondent and suicidal, was able to ventilate her fears of the future in preoperative psychotherapy sessions, and came to surgery in a radically different frame of mind. She had an excellent postoperative course, free of complications, and was subsequently referred for psychotherapy to treat her noncardiac problems.

#### GROUP 6

The sixth category does its hallucinating long before surgery. While that statement may sound facetious, it is fundamentally true. In this category we find people whose basic illness is psychiatric and whose cardiac disorder is either minimal or fantasied. These patients are so coercive and persuasive in duplicating symptoms of a serious cardiac nature that some of them finally end up in cardiac surgery. This is the type of pseudoheart disease in which psychiatric disorder is concealed

by symptoms of heart disease and, in some cases, by exaggerated symptoms that would appear to be well advanced and serious but turn out indeed to be mild. In assessing this category, it is important to note the age in life at which the diagnosis of heart disease occurred, as well as the age in life at the time of admission for evaluation of cardiac surgery. For example, it is obvious that a diagnosis of heart disease in adolescence, a turbulent state to begin with, and one in which a resolution of conflicts about sexual roles and independence is already at the top of the agenda, can make of the diagnosis of the disease an avoidance of the conflicts of the transition from adolescence to maturity. To avoid the pain of growing up, the adolescent may very well welcome the protracted dependency of chronic invalidism. In the case of a diagnosis of heart disease in an adult, both neurotic and healthy defenses are called into service by an already organized personality. In the case of a child, the problems of concreteness and literalism must be included and the delusional states that are temporary must be understood in a context that includes the facts of childhood. For example, one little boy whose heart had stopped during the operation was told by a resident just how long his heart had not been beating. Shortly afterwards, the boy began to act in a remote and withdrawn manner and hid under the sheets. He finally revealed that because his heart had stopped, he felt that he had died and was living as a ghost. This type of delusion obviously must not be confused with a genuine psychosis, one of which has been described by a resident as follows:

"This young woman has had five major surgical procedures in the past three years. In 1956, at a large university hospital, she had a mitral valvulotomy. She has been on digoxin and monthly bicillin since then. It is of interest with respect to this operation that in Atlantic City, last week, Dr. H. saw this cardiac surgeon and said, 'Well, that's a very, very successful case you have. She has hardly a diastolic murmur; in fact, I can't hear one.' And the surgeon looked at Dr. H. and said, 'You know, we opened her up and there was no valvular pathology in her. And we had the psychiatrists see her and they thought she was schizophrenic.'"

#### RECAPITULATION

A summary of our data is provided in Tables I and II. A total of 148 patients were evaluated, included among whom were 10 children

TABLE I.—PSYCHOLOGICAL CLASSIFICATION OF  
CARDIAC SURGICAL PATIENTS

<i>Group</i>	<i>No. of patients</i>	<i>Average age</i>	<i>Diagnosis</i>		<i>No. operated</i>
			<i>Cong.</i>	<i>Acq.</i>	
	%				%
1	22 (16.2)	35	5	17	18 (82)
2	21 (15.4)	42	1	20	3 (14)
3	53 (39.0)	39	10	43	51 (96)
4	29 (21.3)	39	4	25	17 (59)
5	3 (2.2)	33	0	3	3 (100)
6*	8 (5.9)	34	1	3	2 (25)
<i>Total</i>	136 (100)	37.6	21	111	94 (69)

\*Four patients in Group 6 had no heart disease.

under the age of 12. It was decided to treat the children as a separate group because of the special characteristics of the child's psychological attitudes and reactions. Two adult patients were also excluded because of inadequate follow-up information, leaving a final total of 136 patients who were evaluated and classified.

Table I shows the distribution of patients according to groups. It can be seen that the majority of the patients (60.3 per cent) are in groups 3 and 4, the groups distinguished by the high level of ambivalence. The total numbers in group 5 and 6 are too few to permit of statistical treatment.

The average age of the patients shows no significant difference among the groups. The average of 37.6 years reflects the predominance of acquired heart disease, which generally comes to surgery later than the congenital types. This is particularly noticeable in Group 2, in which only one patient had congenital heart disease. This fact is of interest, for Group 2 patients are the ones most poorly motivated for surgery, and it suggests that the patient with congenital heart disease has a compelling need to reverse the accident of birth that rendered him defective.

Of particular importance are the figures showing the number of patients who came to operation. In Group 1, those with the best motivation and least anxiety, 18 of 22 (82 per cent) came to surgery. By contrast, only 3 of the 21 patients in Group 2 (14 per cent) were operated upon. Most of the remaining 18 avoided surgery in one way or another, either by declining it directly, or by signing out of the



TABLE II.—MORBIDITY AND MORTALITY

Group	Preoperative			Postoperative		
	Complications		Deaths	Complications		Deaths
	Med.	Psych.		Med.	Psych.	
	%	%	%	%	%	%
1	1 (4.5)	0	0	4 (22)	5 (28)	1 (5.5)
2	2 (9.5)	4 (19.0)	2 (9.5)	2 (66)	1 (33)	2 (66)
3	1 (2.0)	1 (2.0)	1 (2.0)	9 (18)	26 (51)	9 (18)
4	0	4 (14.0)	1 (3.5)	6 (35)	7 (41)	8 (47)
5	0	0	0	1 (33)	1 (33)	1 (33)
6	0	0	0	0	0	0
Total	4 (2.9)	9 (6.6)	4 (2.9)	22 (23)	40 (42)	21 (22)

hospital, or by developing various symptoms that led to cancellation of surgery. Once out of the hospital, these patients rarely returned and if, by chance, they were readmitted at a later date, they made it clear that they would never consent to operation.

Group 3 patients, who resemble those in Group 1 in their strong desire to get well, show a similar high percentage of cases operated. Of the 53 patients, 51 (96 per cent) came to surgery. They differ from Group 1 patients, however, in their greater degree of anxiety, the effects of which are shown in Table II.

Group 4 patients are characterized by ambivalence that is weighted against surgery. It is not surprising to find, therefore, that the percentage that come to operation, 17 of 29 (59 per cent), is less than in groups 1 and 3 but more than in Group 2. Here too, the high cost of anxiety is revealed in Table II.

The incidence of medical and psychiatric complications and deaths in the various groups is summarized in Table II. The percentages shown in the preoperative columns are based on the total number of patients in the respective groups. The percentages in the postoperative columns are based on the number of patients operated in the respective groups.

In the preoperative period, it may be seen that medical complications are infrequent, with a slightly higher incidence in Group 2. However, a significant number of Group 2 and Group 4 patients developed major psychiatric complications, 19 per cent and 14 per cent respectively. In Group 2, three patients developed acute psychotic episodes preoperatively, requiring transfer to a psychiatric hospital. The fourth

patient became psychotic during cardiac catheterization and died of profound psychogenic shock and its sequelae. In Group 4, the preoperative psychiatric complications consisted of one marked depression, one acute psychosis, and two severe anxiety reactions.

No preoperative deaths occurred in Group 1. There were two preoperative deaths in Group 2, both occurring as sequelae of severe agitation. The single preoperative death in Group 3 did not appear to be related to the patient's psychological state. In Group 4, however, the preoperative death occurred in a 49-year-old man who developed severe agitation lasting many hours and terminated in cardiac arrest.

It is easily apparent from the totals in Table II that the incidence of complications mounts sharply in the postoperative period. Serious medical complications, such as arrhythmias, shock, and postcommissurotomy syndrome, occurred with the same relative frequency according to groups; a lower incidence in 1 and 3, and a higher incidence in 4. The number of Group 2 patients operated is too small for statistical validity. Serious psychiatric complications, however, show a somewhat different pattern. The lowest incidence is still in Group 1 (28 per cent), but Group 3 now shows the highest percentage of major psychiatric complications (51 per cent) and Group 4 only slightly less (41 per cent). We attribute this finding to the serious ambivalence in these latter two groups of patients, and the maximum strain thereby imposed on their psychological defenses. Those who come through surgery enter the recovery period with their emotional resources exhausted, and many are unable to cope with this most difficult phase.

The figures for postoperative deaths provide further corroboration of the predictive usefulness of the classification. Once again, the lowest death rate is found in Group 1 (5.5 per cent), and a somewhat higher incidence obtains in Group 3 (18 per cent). In Group 4, however, the death rate is 47 per cent, thus emphasizing the severe penalty paid by these patients for the combination of strong anxiety and weak motivation.

#### CONCLUSIONS

Attention has been called by numerous authors to the high incidence of psychiatric complications in cardiac surgery. It is the purpose of this report to clarify the nature of the intense and mounting psychological stress to which these patients are subjected; to illustrate the ways in

which patients are affected in the many stages in the process of evaluation and operation; and to propose a classification based on the patient's state of psychological preparedness for surgery. We believe that this type of data, obtained by consideration of the interrelationships of somatic and psychological parameters, has predictive validity, and thus provides the cardiovascular surgical team with a method for assessing an additional dimension of surgical risk. The emotional state of the patient has a direct influence on morbidity and mortality in heart surgery, and preoperative evaluation can identify the poor-risk individuals. Remedial measures may then be instituted and, if successful, may improve the outcome of surgery. If the medical situation permits, it may sometimes be wiser to defer operation until the patient can be helped, by appropriate brief psychotherapy, to achieve a better state of emotional readiness. It is our thesis that the psychological and physiological states are inseparable, and that both must receive proper attention if the patient is to undergo surgery under optimal conditions.

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